Diet, functional performance and muscle quality of independent-living men and women aged 65-75 years

Age-related sarcopenia is a syndrome characterised by progressive decline in skeletal muscle mass and strength (von Haehling, Morley, & Anker, 2010). The European Working Group on Sarcopenia in Older People recommends the measurement of muscle mass and function as means of diagnosing sarcopenia (Cruz-Jentoft et al., 2010) since sole focus on measurement of muscle mass may be of limited value. The age-associated loss of muscle strength (Dynapenia) cannot be only explained by reductions in muscle size since reductions in strength are more rapid than reductions in muscle (Clark & Manini, 2012). Cawthon et al. (2014) developed cut points for appendicular lean mass (ALM) that would identify individuals with clinically significant weakness taking into account both ALM and strength. Since sarcopenia is a multifaceted syndrome with potentially modifiable factors such as dietary intakes, the aim of this pilot study was to explore the interrelationships between dietary intakes, ALM, and strength. Twenty-five healthy older adults including both female (*n*=15, age: 68.8 ± 2.9 years) and male (*n* =10, age 69.5 ± 2.5 years) participants completed a 7-day diet diary before having their handgrip strength and body composition (dual energy X-ray absorptiometry) measured. Males with ALM<19.75 kg and females with ALM<15.02 kg were defined as having low lean muscle mass**,** whilst cut points of <30 kg and <20 kg (Campbell & Vallis, 2014) were used to identify males and females with low strength. Participants received guidance on recording food and drink by household measures. Energy expenditure was calculated using the World Health Organization/Food and Agriculture Organization equation (Frankenfield, Roth-Yousey, & Compher, 2005) for resting energy expenditure and an activity factor of 1.5. Forty percent (40%) of the females displayed low muscle strength while their male counterparts were all above the 30 kg cut point. ALM was 25.6±3.7 and 15.9±1.7 kg for males and females respectively. Twenty-seven percent (27%) of the females were below the cut point for low lean mass whilst males were all above the equivalent cut point. Energy intake (EI) was 1753±366 kcal for males and 1376±270 kcal for females corresponding to an EI deficit of 27.8±21.7 % and 27.7±6 % for males and females respectively. EI was significantly (*P*<0.05) lower than recommended EI. Protein intake was 0.97±0.3 g·kg·d^{-1} for the males and 0.95±0.2 g·kg·d^{-1} for the females representing 18.8±3.1 and 17.8±2.4 % of EI for males and females respectively. Our findings suggest that females in early retirement years are at greater risk of sarcopenia and dynapenia than their male counterparts. Inadequate energy intake and protein consumption which was below current research led recommendations of 20 % suggest that females may benefit from dietary interventions that would address energy and protein deficits.

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